First global host report and new distribution record of *Bactrocera penecorrecta* Drew (Diptera: Tephritidae) from Bihar, India

ABSTRACT

~~Fruit fly, *Bactrocera penecorrecta* Drew (Diptera: Tephritidae) is here reported to reared from infested brinjal fruit (*Solanum melongena* Linnaeus) from Bihar, India~~. ~~We report here~~ ~~brinjal as~~ This study showed that brinjal, *Solanum melongena* Linnaeus is the first global host ~~record~~ of the fruit fly, *Bactrocera penecorrecta* Drew (Diptera: Tephritidae)~~*B. penecorrecta*~~ from Bihar, North India. ~~Also the fruit fly *B. penecorrecta* reported for the first time from Bihar State and North India.~~ Earlier report of *B. penecorrecta* wais from Kerala, South India. In the present investigation, *B. penecorrecta* was recorded ~~after~~ 22 years ~~of~~ after its discovery ~~from~~ in Kerala, South India ~~during~~ in 2002 by R. A. I. Drew and S. Raghu. The record of brinjal as the first host of ~~*Bactrocera B.*~~ *penecorrecta* ~~warrant~~ warrants in ~~depth~~ in-depth investigation of the level of infestation and sanitary and ~~phyto-sanitary~~phytosanitary protocol development for the export as many recent ~~invasion~~ invasions by different *Bactrocera* species in various part of the world beyond their native distributional records.

Keywords: Fruit fly, Bactrocera, Tephritidae, Brinjal, India, Host Plant

1. INTRODUCTION

The fruit fly, *Bactrocera penecorrecta* Drew, was first described by R. A. I. Drew [1] in ~~the year~~ 2002 and reported by Drew and Raghu in 2002 from New Amarambalam Forest, Kerala, India. *B. penecorrecta* belongs to the tribe Dacini of the family Tephritidae. The tribe Dacini is a highly diverse tribe within the family Tephritidae and contains around 1000 species, a fifth of all known species in the family [2,3,4,5]. All tephritid fruit flies fall under the tribe Dacini and are frugivorous or florivorous. ~~and a~~About 10% of the 932 currently recognized species are economic pests of fruits and vegetables around the world [4,5,6,7,8,9,10,11]. These flies are also internationally significant pests of fruits and vegetables as adults lay their eggs into sound fruit ~~on-plant~~ on plant, where the subsequent larval feeding causes fruit loss [11,12]. Knowledge of potential host plants of fruit flies is important in areas where fruit crops are grown commercially because damage to these crops may be caused by fruit fly migration from nearby host plants [13].

2. MATERIAL AND METHODS

The collection of fruit flies infested fruits of Brinjal (only two fruits with maggots were found in the field) from the Dumraon area, Buxar, Bihar, India (Latitude: 25.56^{O} N and Longitude 84.14^{O} E) was carried out during May 2024 and brought to the laboratory of the Department of Entomology, Veer Kunwar Singh College of Agriculture, Dumraon, Bihar India. The infested fruits were kept in a transparent plastic jar of 1000 cc capacity with a 5 cm layer of sawdust in the base of the jar for pupation ~~of the matured third instar maggots~~. After ten days of fruit collection, one ~~one~~ adult emerged from the pupa. The emerged adult fly was preserved in 96% ethyl alcohol for identification. The identification of the adult specimen of fruit fly was carried out with the published key and description available in Drew and Raghu [1], Drew and Romig [14, 15]. For the photography of the specimen, fruit ~~fly~~ flies were pinned and used for photography (Make: Panasonic, Model: DMC-TZ80 under macro setting). The specimen wa~~i~~s preserved in the Insect Museum, Veer Kunwar Singh College of Agriculture, Dumraon, Bihar, India, (Cat. No.: FFBPc-01)

3. RESULTS AND DISCUSSION

~~On the basis of~~ Based on morphological taxonomic keys and ~~description~~ descriptions available in Drew and Raghu [1] and Drew and Romig [14, 15], the fruit fly species reared from infested brinjal was identified as ~~*Bactrocera B.*~~ *penecorrecta*. The photographs of different ~~part~~ parts of *B. penecorrecta* are presented in Figure 1. The ~~fruit fly~~ *B. penecorrecta* ~~has~~ was first described by Drew in 2002 [1].

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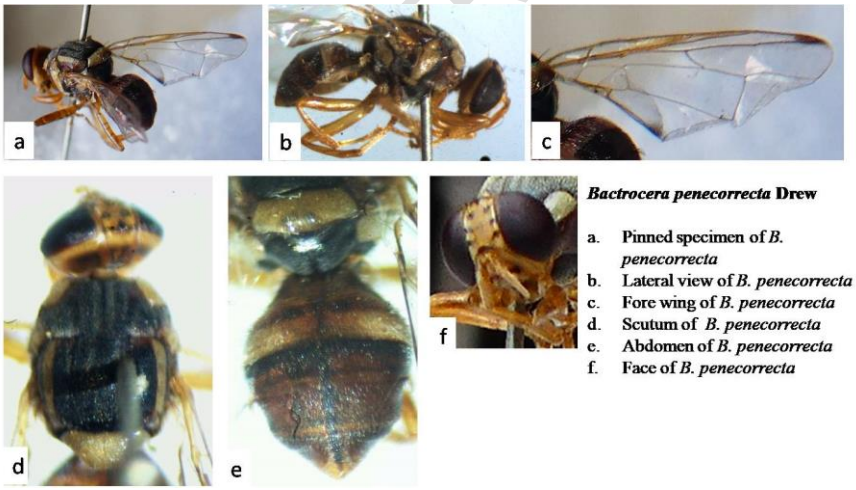

Figure1. Photograph of different parts of *B. penecorrecta* reard from Brinjal

~~Till~~ To date, the host plant of *B. penecorrecta* is unknown and has not been reported in published literature. We report here the ~~brinjal~~ Brinjal as the first global host record of *B. penecorrecta* from Dumraon, Bihar, India. Also, the earlier geographical distribution record of *B. p*e*ne*~~*r*~~*correcta* is limited to South India ~~Drew & Raghu~~ [1,]; ~~Drew & Romig~~ [14]. In the

present investigation, *B. penecorrecta* reported from Dumraon, Bihar (a north and east state of India) is a new geographical distribution record for the species. The present location of the collection of *B. penecorrecta* is about 2000 km far away from its first site of collection from New Amarambalam forest, Kerala, India. Other tephritids recorded from brinjal and other solanaceous plant species in India are *Bactrocera latifrons* (Hendel), *Bactrocera prabhakari* Maneesh et al. and *Zeugodacus tau* (Walker) [16, 17, 18]. More information on biology, other host plants, and the level of infestation ~~needs~~ to be generated to further enhance~~to be generated for further enhancement of~~ the knowledge about *B. penecorrecta*. Also, as other tephritid fruit flies are the invasive and economic pest of many fruit and vegetable crops, a close watch is warranted for the entire state for any economic losses from the species along with the development of sanitary and ~~phyto-sanitary~~phytosanitary protocol development for the export as many recent invasion by different *Bactrocera* species in various part of the world beyond their native distributional records.

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ETHICAL APPROVAL

This study does not contain any studies with human participants or large animals performed by any of the authors. No approval of research ethics committees was required to accomplish the goals of this study.

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